

Lecture 25 - Servo Motors & Stepper Motors

Tuesday, May 5, 2020

10:58 AM

Objectives:	<ul style="list-style-type: none">- Learn how servo motors can be controlled by using timers to generate pulse width modulated signals- Learn how stepper motors work and how they can be controlled using the PIC32 microcontroller
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Unipolar Stepper Motor Phase Sequencing

One Phase full Step Sequencing

Step	A	C	B	D
1	1	0	0	0
2	0	1	0	0
3	0	0	1	0
4	0	0	0	1

Two Phase Full Step Sequencing

Step	A	C	B	D
1	1	0	0	1
2	1	1	0	0
3	0	1	1	0
4	0	0	1	1

One Phase Half Step Sequencing

Step	A	C	B	D
1	1	0	0	0
2	1	1	0	0
3	0	1	0	0
4	0	1	1	0
5	0	0	1	0
6	0	0	1	1
7	0	0	0	1
8	1	0	0	1

Half Step Mode = 5.625° of internal rotation/step

Full Step Mode = 11.25° of internal rotation/step

64:1 ratio of internal rotation to external rotation (typical)

External:

Half Step – 4096 steps/revolution of external shaft

Full Step – 2048 steps/revolution of external shaft